I/WE CLAIM:

1. [ORIGINAL]   A method of optimizing one or more
    system parameters of an optical communications
    system adapted for connection to an optical fiber
    medium of an optical communications network; the
    method comprising the steps of:

    a) obtaining a class ID respecting the optical fiber
        medium;

    b) obtaining a respective optimum setting of each
        system parameter on a basis of the fiber
        identification; and

    c) adjusting a respective value of each system
        parameter in accordance with the respective
        optimum setting.

2. [ORIGINAL]   A method as claimed in claim 1, wherein
    the step of obtaining a class ID respecting the
    optical fiber medium comprises a step of receiving a
    fiber ID respecting the optical fiber medium.

3. [ORIGINAL]   A method as claimed in claim 2, wherein
    the fiber ID is manually entered into the optical
    communications system.

4. [ORIGINAL]   A method as claimed in claim 2, wherein
    the step of receiving a fiber ID comprises the steps
    of: probing the optical fiber medium for the
    presence of a predetermined marking containing
    information of the fiber ID; and if a marking is

detected, reading information of the fiber ID from the marking.

5.   [ORIGINAL]   A method as claimed in claim 4, wherein the predetermined marking is a Bragg grating.

6.   [ORIGINAL]   A method as claimed in claim 2, further comprising a step of using the fiber ID to query a cross-reference table comprising a list of fiber ID's and a class ID associated with each fiber ID, to obtain the class ID respecting the optical fiber medium.

7.   [ORIGINAL]   A method as claimed in claim 1, wherein the step of obtaining a class ID comprises the steps of:

a)   discovering a value of at least one fiber transmission property of the optical fiber medium;

b)   providing a class definition table comprising a plurality of class definitions, each class definition including at least:

i)   a respective class ID; and

ii)   at least one corresponding characteristic transmission property value;

c)   selecting a class ID from the class definition table based on a closest match between corresponding ones of the at least one fiber transmission property value and the at least one characteristic transmission property value.

8.   [ORIGINAL]   A method as claimed in claim 7, wherein
        each characteristic   transmission   property   value
        comprises   a   respective   nominal   value,   and   an
        allowable tolerance defining a value range of the
        characteristic transmission property.

9.   [ORIGINAL]   A method as claimed in claim 8, further
        comprising a step of raising an alarm if any one
        fiber   transmission   property   value   does   not   lay
        within   the   value   range   of   the   corresponding
        characteristic transmission property, for any of the
        plurality · of   class   definitions   of   the   class
        definition table.

10.   [ORIGINAL]   A method as claimed in claim 7, wherein
        the step of obtaining a value of at least one fiber
        transmission property comprises a step of testing
        the optical fiber link in situ.

11.   [ORIGINAL]   A method as claimed in claim 7, wherein
        the step of obtaining a value of at least one fiber
        transmission property comprises a step of testing
        the optical fiber link prior to installation.

12.   [ORIGINAL]   A method as claimed in claim 7, wherein
        the step of obtaining a value of at least one fiber
        transmission   property   comprises   obtaining   a
        respective value of any one or more of: a total
        optical   signal   dispersion;   a   zero   dispersion
        wavelength; an average optical signal attenuation; a
        length of the fiber; a total dispersion per unit

length of the fiber; and an average attenuation per unit length of the fiber.

13.   [ORIGINAL] A method as claimed in claim 12, wherein the at least one characteristic transmission property value comprises a respective value of any one or more of: the zero dispersion wavelength; the total dispersion per unit length of the fiber; and the average attenuation per unit length of the fiber.

14.   [ORIGINAL] A method as claimed in claim 13, wherein the at least one characteristic transmission property value comprises a respective value of each one of the zero dispersion wavelength and the total dispersion per unit length of the fiber.

15.   [ORIGINAL] A method as claimed in claim 7, wherein the step of selecting a class ID comprises the steps of:

a) comparing each respective fiber transmission property value to a corresponding characteristic transmission property value within each class definition of the class definition table; and

b) selecting the class ID of a one of the plurality of class definitions for which each characteristic transmission property value most closely matches a corresponding fiber transmission property value.

16.   [ORIGINAL]   A method as claimed in claim 1, wherein the step of obtaining a respective optimum setting of each system parameter comprises a step of searching a system table comprising a plurality of system definitions, each system definition including a respective class ID and a corresponding optimum setting for each parameter.

17.   [ORIGINAL]   A method as claimed in claim 16, wherein all of the system definitions of the system table pertain to a predetermined set of one or more related optical communications systems.

18.   [ORIGINAL]   A method as claimed in claim 16, wherein the one or more system parameters comprises any one or more of: a transmission wavelength; a signal power; and a received signal detection threshold.

19.   [ORIGINAL]   A method as claimed in claim 18, wherein the step of adjusting a respective value of each system parameter comprises a step of adjusting a transmission wavelength of one or more lasers of the optical communications system.

20.   [ORIGINAL]   A method as claimed in claim 19, wherein the transmission wavelength of each laser is adjusted independently.

21.   [ORIGINAL]   A method as claimed in claim 19, wherein the transmission wavelength is adjusted by tuning.

22.   [ORIGINAL] A method as claimed in claim 19, wherein
       the transmission wavelength is adjusted by means of
       one or more filters.

23.   [ORIGINAL] A method as claimed in claim 18, wherein
       the step of adjusting a respective value of each
       system parameter comprises a step of adjusting a
       signal power of one or more lasers of the optical
       communications system.

24.   [ORIGINAL] A method as claimed in claim 23, wherein
       the signal power of each laser is adjusted
       independently.

25.   [ORIGINAL] A method as claimed in claim 18, wherein
       the step of adjusting a respective value of each
       system parameter comprises a step of adjusting a
       detection threshold of one or more optical signal
       detectors of the optical communications system.

26.   [ORIGINAL] A method as claimed in claim 23, wherein
       the detection threshold of each optical signal
       detector is adjusted independently.

27.   [ORIGINAL] An apparatus for optimizing one or more
       system parameters of an optical communications
       system adapted for connection to an optical fiber
       medium of an optical communications network; the
       apparatus comprising:

       a) means for obtaining a class ID respecting the
           optical fiber medium;

b) means for obtaining a respective optimum setting of each system parameter on a basis of the class ID; and

c) means for adjusting a respective value of each system parameter in accordance with the respective optimum setting.

28. [AMENDED] An apparatus as claimed in claim 27, wherein the means for obtaining a class ID respecting the optical fiber medium comprises means for of receiving a fiber ID respecting the optical fiber medium.

29. [ORIGINAL] An apparatus as claimed in claim 28, wherein the fiber ID is manually entered into the optical communications system.

30. [ORIGINAL] An apparatus as claimed in claim 28, wherein the means for receiving a fiber ID comprises means for: probing the optical fiber medium for the presence of a predetermined marking containing information of the fiber ID; and if a marking is detected, reading information of the fiber ID from the marking.

31. [ORIGINAL] An apparatus as claimed in claim 30, wherein the predetermined marking is a Bragg grating.

32. [ORIGINAL] An apparatus as claimed in claim 28, further comprising:

a) a cross-reference table comprising a list of fiber ID's and a class ID associated with each fiber ID; and

b) means for using the fiber ID to obtain the class ID by querying the cross-reference table.

33. [ORIGINAL] An apparatus as claimed in claim 27, wherein the step of obtaining a class ID comprises:

a) means for discovering a value of at least one fiber transmission property of the optical fiber link;

b) a class definition table comprising a plurality of class definitions, each class definition including at least:

i) a respective class ID; and

ii) at least one corresponding characteristic transmission property value; and

c) means for selecting a class ID from the class definition table based on a closest match between corresponding ones of the at least one fiber transmission property value and the at least one characteristic transmission property value.

34. [ORIGINAL] An apparatus as claimed in claim 33, wherein each characteristic transmission property value comprises a respective nominal value, and an allowable tolerance defining a value range of the characteristic transmission property.

35.　[ORIGINAL]　An apparatus as claimed in claim 34, further comprising means for raising an alarm if any one fiber transmission property value does not lay within the value range of the corresponding characteristic transmission property, for any of the plurality of class definitions of the class definition table.

36.　[ORIGINAL]　An apparatus as claimed in claim 33, wherein the means for discovering a value of at least one fiber transmission property comprises a step of testing the optical fiber link in situ.

37.　[ORIGINAL]　An apparatus as claimed in claim 33, wherein the means for discovering a value of at least one fiber transmission property comprises means for discovering a respective value of any one or more of: a total optical signal dispersion; a zero dispersion wavelength; an average optical signal attenuation; a length of the fiber; a total dispersion per unit length of the fiber; and an average attenuation per unit length of the fiber.

38.　[ORIGINAL]　An apparatus as claimed in claim 37, wherein the at least one characteristic transmission property value comprises a respective value of any one or more of: the zero dispersion wavelength; the total dispersion per unit length of the fiber; and the average attenuation per unit length of the fiber.

39.   [ORIGINAL]   An apparatus as claimed in claim 38,
       wherein the at least one characteristic transmission
       property value comprises a respective value of each
       one of the zero dispersion wavelength and the total
       dispersion per unit length of the fiber.

40.   [ORIGINAL]   An apparatus as claimed in claim 33,
       wherein the means for selecting a class ID
       comprises:

       a) means for comparing each respective fiber
           transmission property value to a corresponding
           characteristic transmission property value within
           each class definition of the class definition
           table; and

       b) means for selecting the class ID of a one of the
           plurality of class definitions for which each
           characteristic transmission property value most
           closely matches a corresponding fiber
           transmission property value.

41.   [ORIGINAL]   An apparatus as claimed in claim 27,
       wherein the means for obtaining a respective optimum
       setting of each parameter comprises means for
       searching a system table comprising a plurality of
       system definitions, each system definition including
       a respective class ID and a corresponding optimum
       setting for each parameter.

42.   [ORIGINAL]   An apparatus as claimed in claim 41,
       wherein each of the system definitions of the system

table pertain to a predetermined set of one or more related optical communications systems.

43.   [ORIGINAL]   An apparatus as claimed in claim 41, wherein the one or more parameters comprises any one or more of: a transmission wavelength; a signal power; and a signal detection threshold.

44.   [ORIGINAL]   An apparatus as claimed in claim 43, wherein the means for adjusting a respective value of each parameter comprises means for adjusting a transmission wavelength of one or more lasers of the optical communications system.

45.   [ORIGINAL]   An apparatus as claimed in claim 44, wherein the means for adjusting a transmission wavelength of each laser is adapted to adjust each laser independently.

46.   [ORIGINAL]   An apparatus as claimed in claim 44, wherein the means for adjusting a transmission wavelength of each laser is adapted to adjust each laser by tuning.

47.   [ORIGINAL]   An apparatus as claimed in claim 43, wherein the means for adjusting a respective value of each system parameter comprises means for adjusting a signal power of one or more lasers of the optical communications system.

48.   [ORIGINAL]   An apparatus as claimed in claim 47, wherein the means for adjusting the signal power of

each laser is adapted to adjust the signal power of each laser independently.

49.   [ORIGINAL]   An apparatus as claimed in claim 43, wherein the means for adjusting a respective value of each system parameter comprises means for adjusting a detection threshold of one or more optical signal detectors of the optical communications system.

50.   [ORIGINAL]   An apparatus as claimed in claim 49, wherein the means for adjusting the detection threshold of each optical signal detector is adapted to adjust the detection threshold of each optical signal detector independently.

51.   [CANCELED]

52.   [CANCELED]

53.   [AMENDED]   A system as claimed in claim 68, wherein the class ID comprises a fiber ID respecting the optical fiber medium.

54.   [ORIGINAL]   A system as claimed in claim 53, wherein the fiber ID is manually entered into the optical communications system.

55.   [AMENDED]   A system as claimed in claim 53, wherein the controller is adapted to: control the transceiver to probe the optical fiber medium for the presence of a predetermined marking containing

information of the fiber ID; and if a marking is detected, read information of the fiber ID from the marking.

56.   [ORIGINAL]   An apparatus as claimed in claim 55, wherein the predetermined marking is a Bragg grating.

57.   [ORIGINAL]   A system as claimed in claim 53, wherein the controller is further adapted to use the fiber ID to query a cross-reference table comprising a list of fiber ID's and a class ID associated with each fiber ID, to obtain the class ID respecting the optical fiber medium.

58.   [AMENDED]   A system as claimed in claim 68, wherein the controller is adapted to obtain a class ID by:

a)   discovering a value of at least one fiber transmission property of the optical fiber medium;

b)   searching a class definition table comprising a plurality of class definitions, each class definition including at least:

    i)   a respective class ID; and

    ii)   at least one corresponding characteristic transmission property value; and

c)   selecting a class ID from the class definition table based on a closest match between corresponding ones of the at least one fiber

transmission property value and the at least one characteristic transmission property value.

59. [ORIGINAL] A system as claimed in claim 58, wherein each characteristic transmission property value comprises a respective nominal value, and an allowable tolerance defining a value range of the characteristic transmission property.

60. [ORIGINAL] A system as claimed in claim 59, wherein the controller is further adapted to raise an alarm if any one fiber transmission property value does not lay within the value range of the corresponding characteristic transmission property, for any of the plurality of class definitions of the class definition table.

61. [ORIGINAL] A system as claimed in claim 58, wherein the at least one fiber transmission property comprises any one or more of: a total optical signal dispersion; a zero dispersion wavelength; an average optical signal attenuation; a length of the fiber; a total dispersion per unit length of the fiber; and an average attenuation per unit length of the fiber.

62. [ORIGINAL] A system as claimed in claim 61, wherein the at least one characteristic transmission property value comprises a respective value of any one or more of: the zero dispersion wavelength; the total dispersion per unit length of the fiber; and the average attenuation per unit length of the fiber.

63.   [ORIGINAL]   A system as claimed in claim 62, wherein the at least one characteristic transmission property value comprises a respective value of each one of the zero dispersion wavelength and the total dispersion per unit length of the fiber.

64.   [ORIGINAL]   A system as claimed in claim 58, wherein the controller is adapted to select a class ID by:

   a)   comparing each respective fiber transmission property value to a corresponding characteristic transmission property value within each class definition of the class definition table; and

   b)   selecting the class ID of a one of the plurality of class definitions for which each characteristic transmission property value most closely matches a corresponding fiber transmission property value.

65.   [AMENDED]   A system as claimed in claim 68, wherein the controller is adapted to obtain a respective optimum setting of each system parameter by searching a system table comprising a plurality of system definitions, each system definition including a respective class ID and a corresponding optimum setting for each system parameter.

66.   [ORIGINAL]   A system as claimed in claim 65, wherein all of the system definitions of the system table pertain to a predetermined set of one or more related optical communications systems.

67.   [AMENDED]   A system as claimed in claim 65, wherein the one or more system parameters comprises any one or more of: a transmission wavelength; a signal power; and a received signal detection threshold.

68.   [NEW]   An optical communications system adapted for connection to an optical fiber medium of an optical communications network, the optical communications system comprising:

a)   a transceiver including a port connected for bi-directional communications through the optical fiber medium;

b)   a controller unit for controlling operation of the optical communications system, the controller unit being adapted to:

i)   obtain a class ID respecting the optical fiber medium;

ii)   obtain a respective optimum setting of each system parameter, based on the class ID; and

iii)   adjust a respective value of each system parameter in accordance with the corresponding optimum setting.